

Amendments to the Claims

This listing of the claims will replace all prior versions, and listings of claims in the application:

1. (currently amended) A voice coil actuator arm comprising:
 - a head arm collection including a first head arm, a second head arm and a third head arm;
 - wherein each head arm of said head arm collection is comprised of:
 - at least one ground plane formed in said head arm; and
 - a first and a second pair of ~~coplanar~~ coplanar, parallel transmission paths essentially parallel to said ground plane interconnecting both a read differential wire pair and a write differential wire pair to a head slider, respectively;
 - said first parallel transmission path pair interconnects to a disk drive read interface; and
 - said second parallel transmission path pair interconnects to a disk drive write interface.
2. (currently amended) The apparatus of Claim 1,
 - wherein said first head arm is further comprised of:
 - a third and a fourth pair of ~~coplanar~~ coplanar, parallel transmission paths essentially parallel to said ground plane interconnecting both a second read differential wire pair and a second write differential wire pair to a second head slider, respectively;
 - said third parallel transmission path pair interconnects to a second disk drive read interface; and
 - said fourth parallel transmission path pair interconnects to a second disk drive write interface.
3. (Previously presented) The apparatus of Claim 1, further comprising:
 - an analog interface interconnecting said first parallel transmission path and said disk read interface, for at least one of said head arms; and
 - said analog interface interconnecting said second parallel transmission path and said disk write interface, for at least one of said head arms.
4. (Previously presented) The apparatus of Claim 1, further comprising:

an analog interface interconnecting said first parallel transmission path and said disk read interface, for each of said head arms; and

said analog interface interconnecting said second parallel transmission path and said disk write interface, for each of said head arms.

5. (Original) A disk drive comprising said voice coil actuator arm of Claim 1.

6. (currently amended) A method for a head arm providing electrical interconnection of a read differential wire pair and a write differential wire pair between a head slider and a disk drive read interface and a disk drive write interface, respectively, comprising the steps of:

creating a ground plane in said head arm;

providing at least two differential signal paths as essentially parallel, ~~coplanar~~ coplanar traces on said head arm traversing an essentially fixed distance parallel to said ground plane as a first differential trace pair and a second differential trace pair;

providing connectivity to said head slider for said read differential wire pair and for said write differential wire pair via said first and said second differential trace pair, respectively;

providing connection to said disk drive read interface via said first differential trace pair; and

providing connection to said disk drive write interface via said second differential trace pair.

7. (currently amended) ~~A~~ The method of Claim 6 providing electrical interconnection by a voice coil actuator arm through at least one head arm between at least one head slider coupled to said head arm and a disk drive read interface and a disk drive write interface, for said head slider, further comprising the steps ~~step~~ of:

said head arm providing electrical interconnection between said head slider and said disk drive read interface and said disk drive write interface ~~as in Claim 6~~.

8. (currently amended) The method of Claim 7, further comprising the step of:

said head arm providing electrical interconnection between a second head slider and said disk drive read interface and said disk drive write interface, further comprising the steps of:

providing a third differential signal path and a fourth differential signal path as essentially parallel, ~~coplanar~~ coplanar traces on said head arm traversing essentially parallel to said ground plane as a third differential trace pair and a fourth differential trace pair;

providing connectivity to a ~~said~~ second head slider for a second read differential wire pair and for a second write differential wire pair via said third differential trace pair and said fourth differential trace pair, respectively;

providing connection to a second disk drive read interface via said third differential trace pair; and

providing connection to a second disk drive write interface via said fourth differential trace pair.

9. (Currently amended) The method of Claim 8,

wherein said voice coil actuator arm is further comprised of a second head arm; and

said method is further ~~comprised of~~ comprising the steps step of:

said second head arm providing electrical interconnection between a third head slider and a third disk drive read interface and a third disk drive write interface, further comprising the steps of:

creating a ground plane in said second head arm;

providing at least two differential signal paths as essentially parallel, coplanar traces on said second head arm traversing an essentially fixed distance parallel to said ground plane as a first differential trace pair and a second differential trace pair;

providing connectivity to said third head slider for said read differential wire pair and for said write differential wire pair via said first and said second differential trace pair, respectively;

providing connection to said disk drive read interface via said first differential trace pair;
and

providing connection to said disk drive write interface via said second differential trace pair.

10. (currently amended) The method of Claim 9,

wherein said voice coil actuator arm is further comprised of a third head arm; and

said method is further ~~comprised of~~ comprising the steps step of:

said third head arm providing electrical interconnection between a fourth head slider and a fourth disk drive read interface and a fourth disk drive write interface, further comprising the steps of:

creating a ground plane in said third head slider;

providing at least two differential signal paths as essentially parallel, coplanar traces on said third head slider traversing an essentially fixed distance parallel to said ground plane as a first differential trace pair and a second differential trace pair;

providing connectivity to said fourth head slider for said read differential wire pair and for said write differential wire pair via said first and said second differential trace pair, respectively;

providing connection to said disk drive read interface via said first differential trace pair;
and

providing connection to said disk drive write interface via said second differential trace pair.

11. (Original) The method of Claim 7,

wherein the step providing connection to said disk drive read interface via said first differential trace pair is further comprised of the steps of:

providing a first read analog interface connection to said first differential trace pair; and

providing a first disk read analog interface connection to said disk drive read interface;

and

wherein the step providing connection to said disk drive write interface via said second differential trace pair is further comprised of the steps of:

providing a first write analog interface connection to said second differential trace pair;

and

providing a first disk write analog interface connection to said disk drive write interface.

12. (currently amended) A method of operating a disk drive using the method of Claim 7 for said head arm providing electrical interconnection of said read differential wire pair and said write differential wire pair between said head slider and said disk drive read interface and said disk drive write interface, comprising the step of: the steps of Claim 7

said head arm providing electrical interconnection between said head slider and said disk drive read interface and said disk drive write interface, further comprising the steps of:

using said ground plane in said head arm;

using said at least two differential signal paths as essentially parallel, coplanar traces on said head arm traversing said essentially fixed distance parallel to said ground plane as said first differential trace pair and said second differential trace pair;

using said connection to said disk drive read interface via said first differential trace pair for said read differential wire pair with said head slider; and

using said connection to said disk drive write interface via said second differential trace pair for said write differential wire pair with said head slider.

13. (currently amended) The method of Claim 6, further comprising the steps of:

providing a third differential signal path and a fourth differential signal path as essentially parallel, ~~coplanar~~ coplanar traces on said head arm traversing an essentially fixed distance parallel to said ground plane as a third differential trace pair and a fourth differential trace pair;

providing connectivity to a second head slider for a second read differential wire pair and for a second write differential wire pair via said third and said fourth differential trace pair, respectively;

providing connection to a second disk drive read interface via said third differential trace pair; and

providing connection to a second disk drive write interface via said fourth differential trace pair.

14. (currently amended) A head arm comprising:

at least one ground plane formed in said head arm; and

a first and a second pair of ~~coplanar~~ coplanar, parallel transmission paths essentially parallel to said ground plane interconnecting both a read differential wire pair and a write differential wire pair to a head slider;

said first parallel transmission path pair interconnects to a disk drive read interface; and

said second parallel transmission path pair interconnects to a disk drive write interface.

15. (Original) A voice coil actuator arm comprising at least one head arm as in Claim 14.

16. (currently amended) The ~~apparatus~~ voice coil actuator arm of Claim 15,
wherein said head arm is further comprised of:

a third and a fourth pair of ~~coplanar~~ coplanar, parallel transmission paths essentially parallel to said ground plane interconnecting both a second read differential wire pair and a second write differential wire pair to a second head slider;

said third parallel transmission path pair interconnects to a second disk drive read interface; and

said fourth parallel transmission path pair interconnects to a second disk drive write interface.

17. (currently amended) The ~~apparatus~~ voice coil actuator arm of Claim 16, further comprising:

a second head arm interconnecting a third head slider, a third disk read interface and a third disk write interface.

18. (currently amended) The ~~apparatus~~ voice coil actuator arm of Claim 17, further comprising:

a third head arm interconnecting a fourth head slider, a fourth disk read interface and a fourth disk write interface.

19. (currently amended) The ~~apparatus~~ voice coil actuator arm of Claim 15, further comprising:

an analog interface interconnecting said first parallel transmission path and said disk read interface; and

said analog interface interconnecting said second parallel transmission path and said disk write interface.

20. (Original) A disk drive comprising said voice coil actuator arm of Claim 15.

21. (currently amended) The ~~apparatus~~ head arm of Claim 14, further comprising:

a third and a fourth pair of ~~coplanar~~ coplanar, parallel transmission paths essentially parallel to said ground plane interconnecting both a second read differential wire pair and a second write differential wire pair to a second head slider;

said third parallel transmission path pair interconnects to a second disk drive read interface; and

said fourth parallel transmission path pair interconnects to a second disk drive write interface.

22. (cancelled)

23. (cancelled)

24. (cancelled)

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27. (cancelled)

28. (cancelled)

29. (cancelled)

30. (cancelled)

31. (cancelled)